CLAIMS

What is claimed is:

1. A socket, comprising:

a first conductor having two or more contact regions; and

a second conductor arranged substantially parallel to said first conductor and having two or more contact region,

wherein said first and second conductors are spaced relative to one another so as to provide a predetermined electrical impedance.

2. A socket as in claim 1 further comprising a dielectric spacer disposed between said first and second conductors.

3. A socket as in claim 2 wherein said contact regions of said first and second conductors provide complaint coupling regions for said socket.

4. A socket as in claim 3 wherein said contact regions of said first and second conductors are made of a Beryllium-Copper (Be-Cu) alloy.

5. A socket as in claim 3 wherein said contact regions of said first and second conductors comprise an elastomer-backed metal region.

6. A socket as in claim 2 wherein said contact regions of said first and second conductors comprise fingers offset from said respective conductors through a bend.

7. A socket as in claim 1 wherein said contact regions of said first and second conductors comprise compliant coupling regions.

8. A socket as in claim 1 wherein said contact regions comprise non-compliant coupling regions.

9. A socket as in claim 1 wherein said contact regions of said first conductor are arranged to contact a lead disposed on a first side of a circuit element and said contact regions of said second conductor are arranged to contact a lead disposed on a second side of said circuit element.

10. A socket as in claim 1 wherein said first conductor is further adapted to be coupled to a substrate through only two electrical contact elements over its length, regardless of the number of contact regions of said first conductor.

11. A socket as in claim 10 wherein said second conductor is further adapted to be coupled to said substrate through a number of electrical contact elements disposed along its length, the number of contact elements being independent of the number of contact regions of said second conductor.

12. An electrical connector, comprising:

a socket; and

a plurality of conductors disposed within said socket and arranged to carry electrical signals as transmission lines, said conductors being arranged into a first group of conductors each adapted to be coupled to a substrate at only two electrical contact elements and a second group of conductors each adapted to be coupled to said substrate at a plurality of electrical contact elements.

13. A connector as in claim 12 wherein said conductors each include compliant contact regions.

14. A connector as in claim 13 wherein said contact regions of said conductors are arranged such that the contact regions of a first of said conductors are positioned within said socket so as to contact a lead disposed on a first side of a circuit element and the

contact regions of a second of said second conductors are positioned within said socket so as to contact a lead disposed on a second side of said circuit element.

15. A connector as in claim 14 further comprising a dielectric spacer disposed between said first and second conductors.

16. A connector as in claim 13 wherein said contact regions of said conductors are made of a Beryllium-Copper (Be-Cu) alloy.

17. A connector as in claim 13 wherein said contact regions of said conductors comprise elastomer-backed metal regions.

18. A connector as in claim 14 wherein said contact regions of said first and second conductors comprise fingers offset from said respective conductors through a bend.

19. A circuit board, comprising:

a compliant electrical connector having a plurality of conductors arranged into a first group of conductors each adapted to be coupled to a substrate at only two electrical contact elements and a second group of conductors each adapted to be coupled to said substrate at a plurality of electrical contact elements; and

an electrical channel coupled to said connector.

20. A circuit board as in claim 19 wherein said electrical channel comprises a plurality of traces.

21. A circuit board as in claim 20 wherein each of said plurality of electrical conductors further includes two or more contact regions, the number of contact regions of each conductor being independent of the number of electrical contact elements of a respective conductor.

22. A circuit board as in claim 21 wherein said contact regions of said conductors comprise fingers offset from said conductors through a bend.

23. A circuit board as in claim 21 wherein said contact regions of said conductors comprise elastomer-backed metal regions.

24. A connector, comprising:

a first electrical signal path configured to provide a bus-like interconnection between similar electrical couplings of two or more electrical components, said bus-like interconnection adapted to be isolated from a circuit board except for two electrical contact elements disposed near opposite ends of said first electrical signal path; and

a ground signal path.

25. A connector as in claim 24 wherein said ground signal path is configured as a second electrical signal path arranged to provide a bus-like interconnection between similar electrical couplings of said two or more electrical components.

26. A connector as in claim 25 wherein said ground signal path is adapted to be electrically coupled to a ground plane of said circuit board at a plurality of points along said bus-like interconnection.

27. A connector as in claim 26 wherein said first electrical signal path comprises an electrical conductor having compliant contact regions.

28. A connector as in claim 27 wherein said compliant contact regions comprise elastomer-backed metal regions.

29. A connector as in claim 27 wherein said compliant contact regions are made of a Beryllium-Copper (Be-Cu) alloy.

30. A socket, comprising:

a conductive signal bar including two or more contact regions, each adapted to couple to a contact region on a respective electrical device, said signal bar further adapted to be electrically coupled to a circuit board through only two electrical contact elements regardless of the number of contact regions of said signal bar; and

a conductive ground bar arranged substantially parallel to said signal bar, said ground bar having two or more contact regions, each adapted to couple to a contact region on said respective electrical devices, and further being adapted to be electrically coupled to a conductive reference region of said circuit board at a number of electrical contact elements, the number of electrical contact elements being independent of the number of contact regions of said ground bar.

31. A socket as in claim 30 wherein said electrical contact elements of said conductive signal bar comprise metal posts disposed near the ends of said conductive signal bar.

32. A socket as in claim 31 wherein said electrical contact elements of said ground bar comprise metal posts disposed so as to electrically couple said ground bar to said reference region at a plurality of positions throughout the length of said ground bar.

33. A socket as in claim 32 wherein said posts of said ground bar are disposed at approximately equal intervals over the length of said ground bar.

34. A socket as in claim 30 further comprising a plurality of said conductive signal bars and conductive ground bars arranged to alternate in a signal, ground, signal, ground, etc. pattern.

35. A socket as in claim 30 wherein said ground bar is arranged substantially parallel to said signal bar such that the transmission line impedance between said ground bar and said signal bar is determinable.

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ABSTRACT

A socket includes a first conductor having two or more contact regions and a second conductor arranged substantially parallel to the first conductor and having two or more contact regions. The first and second conductors are spaced relative to one another so as to provide a predetermined electrical impedance and may be arranged to carry electrical signals as transmission lines. A dielectric spacer may be disposed between the first and second conductors to provide the spacing. Contact regions of the first and second conductors may provide compliant coupling regions for the socket. The contact regions of the first conductor may be positioned within the socket so as to contact a lead disposed on a first side of a circuit element and the contact regions of the second conductor may be positioned within the socket so as to contact a lead disposed on a second side of the circuit element. The first conductor may be further adapted to be coupled to a substrate through only two electrical contact elements over its length, regardless of the number of contact regions of the first conductor. In addition, the second conductor may be further adapted to be coupled to the substrate through a number of electrical contact elements disposed along its length, the number of contact elements being independent of the number of contact regions of the second conductor.